

### **ABSTRACT OF THE DISCLOSURE**

This invention provides methods and apparatus for performing microanalytic and microsynthetic analyses and procedures. Specifically, the invention provides a microsystem platform for use with a micromanipulation device to manipulate the platform by rotation, thereby  
5 utilizing the centripetal force resulting from rotation of the platform to motivate fluid movement through microchannels embedded in the microplatform. The microsystem platforms of the invention are also provided having microfluidics components, resistive heating elements, temperature sensing elements, mixing structures, capillary and sacrificial valves, and methods for using these microsystems platforms for performing biological, enzymatic, immunological  
10 and chemical assays. An electronic spindle designed rotor capable of transferring electrical signals to and from the microsystem platforms of the invention is also provided.